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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,003	03/22/2001	David M. Sabatini	WIBL-P02-001	5682

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EXAMINER	
KAUSHAL, SUMESH	
ART UNIT	PAPER NUMBER
1636	

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,003	SABATINI, DAVID M.	
	Examiner	Art Unit	
	Sumesh Kaushal Ph.D.	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *160-236* is/are pending in the application.

4a) Of the above claim(s) *178-236* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *160-177* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 April 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/06/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response filed on 03/26/04 has been acknowledged.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/06/03 has been entered.

Claims 160-236 are pending.

Election/Restrictions

Claims 178-236 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 03/26/04.

Claims 160-177 are examined in this office action.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 160-175 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-151, of U.S. Patent No. 6,544,790. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of an array of transfected cells as claimed in the instant application (US 09/817,003) is encompassed by the invention of US 6,544,790. The US Pat. 790' claims an array of transfected eukaryotic cells comprising plurality of affixed nucleic acid molecules to form an array of nucleic acid molecules and cells transfected with the nucleic acid sequences at discrete locations where the nucleic acid molecules were deposited (see Us 790' claims 1-4, 34, 41-44, 68, 77-80, 102, 112-114, 138 and 148-151). Regarding claims 160-164 and 166-167 specifically the US 790' claims an array of transfected eukaryotic cells, wherein the array of transfected cells comprises plurality of nucleic acid sequences (see US 790' claims 1, 41, 77 and 112). Regarding claim 165 the US 790' claims an array of transfected eukaryotic cells created by plating $0.3x10^5$-$3x10^5$/cm2 (see US 790' claim 1 section c). Regarding claim 168-169 and 171-174 specifically the US 790' claims an array of transfected eukaryotic cells, wherein the array comprises up to 10,000 to 15,000 different discrete locations (see US 790' claims 38, 72, 106 and 142). In addition making an array of transfected eukaryotic cells having 100,000 or 1000,000 locations per square centimeter is well with in the

reach of one skill in the art, since each location is only 100-200 um in diameter and is 200-500 um apart (see US 790' claims 39-40, 73-74, 107-108, 143-144). At such a resolution it is obvious make an array with 100,000 or 1000,000 locations per square centimeter to increase the capacity of an array. Thus the invention as claimed is prima facie obvious in view of US 6544790.

Claims 160 and 176-177 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 148-151, of U.S. Patent No. 6,544,790 for the reasons as stated above and in view of Montgomery et al (Proc Natl Acad Sci U S A. 95(26): 15502-7, 1998).

U.S. Patent No. 6,544,790 is relied upon as described in rejection above. However, US 790' does not teach the use double-stranded RNA molecule or nucleic acid molecule having a modified base or backbone.

Montgomery teaches the double-stranded RNA mediated genetic interference in C.elegans. Regarding claim 176 the cited art teaches a nucleic acid molecule, which encodes double-stranded RNA for RNAi experiments (page 15502, col2. para.2). Regarding claim 177 the cited art teaches gene-specific probes for insitu hybridization, wherein the probe comprises Digoxigenin (DIG)-labeled single stranded DNA probe (page 15503, col.2, para. 3).

Thus it would have been obvious to one ordinary skill in the art at the time of filing to modify the invention of US 790' by substituting the nucleic acid molecules with a double-stranded RNA molecule or a nucleic acid molecule having a modified base or backbone. One would have been motivated to incorporate a double-stranded RNA molecule to inhibit the expression of a gene of interest. One would have been motivated to use a nucleic acid molecule as probe to analyze the gene expression of interest. One would have reasonable expectation of success, since transduction of eukaryotic cells with nucleic acid molecules has been routine in the art at the time of filing. Thus the invention as claimed is *prima facie* obvious in view of cited art of record.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 160-175 are rejected under 35 U.S.C. 102(e) as being anticipated by Taylor et al (US 6,103,479 2000).

The instant claims are drawn to an array of transfected eukaryotic cells comprising a surface having an array of at least 100-1000,000 locations per square centimeter (as claimed), wherein each location comprises eukaryotic cells that are transfected with one or more defined nucleic acid molecules.

Taylor teaches making of miniaturizes high-throughput cell array and an apparatus for cell-based screening. Regarding claims 160, 168-175 the cited art teaches a 20mmx30mm micro-patterned array of cells that fills a 1000x1500 arrays (col.16 lines 44-50). The cited art further teaches that the preferred cell types for the micro-patterned array include lymphocytes, cancer cells, fibroblasts, neurons, fungi, bacteria and other prokaryotic and eukaryotic cells (col.13 lines 5-35). The cited art further teaches micro-patterns at discrete locations comprises array of different forms, which accommodate a sample size from 1 nanoliter (nl) to 1000nl (col.9 lines 7-10). The cited art further teaches that the size of a well on micro-patterned array ranges from 200

μm to 400μm (Fig 3.B). Regarding claims 161-164 and 166-167 the cited art teaches that the cells attaches to the wells can be modified with luminescent of cell chemical or molecular properties. The indicators can be introduced into the cells before or after the cells were seeded onto array by any one or combination of variety of physical methods such as diffusion across the cell membrane, mechanical perturbation of cell membrane or genetic engineering so that they express under prescribed conditions. The cited art further teaches the use of reporter genes which encodes chemiluminescent proteins, which permits the analysis of the physiological state of cells when contacted with drugs or other reactive substances (Col.12 lines 44-67, col. 13, line 1-4). Regarding claim 165 the cited art teaches that the cells suspended in culture media at concentration from about 10^3-10^7 cells per ml are incubated in contact with the wells. The cited art teaches that the density of cells attached to wells is controlled by the cell density in the cell suspension, time permitted for cell attachment to the well surface (col.12, lines 13-36). Thus given the broadest reasonable interpretation the cited art clearly teaches an array of transfected eukaryotic cells as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 176 and 177 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al (US 6103,479 2000) as applied to claims 160-175 above, and further in view of Montgomery et al (Proc Natl Acad Sci U S A. 95(26): 15502-7, 1998).

Taylor et al is relied upon as described in rejection above. However, Taylor does not teach the use double-stranded RNA molecule or nucleic acid molecule having a modified base or backbone.

Montgomery teaches the double-stranded RNA mediated genetic interference in C.elegans. Regarding claim 176 the cited art teaches a nucleic acid molecule, which encodes double-stranded RNA for RNAi experiments (page 15502, col2. para.2). Regarding claim 177 the cited art teaches gene-specific probes for insitu hybridization, wherein the probe comprises Digoxigenin (DIG)-labeled single stranded DNA probe (page 15503, col.2, para. 3).

Thus it would have been obvious to one ordinary skill in the art at the time of filing to modify the invention of Taylor by substituting the nucleic acid molecules with a double-stranded RNA molecule or a nucleic acid molecule having a modified base or backbone. One would have been motivated to incorporate a double-stranded RNA molecule to inhibit the expression of a gene of interest. One would have been motivated to use a nucleic acid molecule as probe to analyze the gene expression of interest. One would have reasonable expectation of success, since transduction of eukaryotic cells with nucleic acid molecules has been routine in the art at the time of filing. Thus the invention as claimed is *prima facie* obvious in view of cited prior art of record.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sumesh Kaushal Ph.D. whose telephone number is 571-272-0769. The examiner can normally be reached on Mon-Fri. from 9AM-5PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yucel Irem Ph.D. can be reached on 571-272-0781.

The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**. Information regarding the status of an application may be

obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sumesh Kaushal
Examiner GAU 1636

SUMESH KAUSHAL
PATENT EXAMINER